Name:_____ Date: _____

Teammates:

1.- _____ 2.- _____

3.- _____ 4.- _____

Instructor: _____

Note: Show your work, including calculations.

Data

Measure the period of the input signal, and the actual values of Resistance, and Capacitance. Record your values in Table 1.

Table 1.- Parameters

Resistance (Ω)	Capacitance (F)	Signal's Period (s) (s)	Angular Freq. ( )
$R =$	$C =$	$T =$	$\omega =$

Measure the peak-to-peak voltage drop across the resistor and capacitor for each of the input voltages listed in Table 2. Record your values in the same table.

Table 2.- Voltage Drops

$\Delta V_{s\,p-p}$ (V)	$\Delta V_{R\,p-p}$ (V)	$I_{con\,p-p}$ (A)	$\Delta V_{C\,p-p}$ (V)	$I_{dis\,p-p}$ (A)

Analysis

1. Determine the angular frequency of the input signal and record it in Table 1.

2. For each voltage drop across the resistor, determine the peak-to-peak value of the conduction current (use Ohm's law). Show here a sample calculation, and record all your results in Table 2.

3. For each voltage drop across the capacitor, determine the peak-to-peak value of the displacement current. Show here a sample calculation, and record all your measurements in Table 2.

4. In the space provided for Figure 1 (next page), make a plot of the displacement current against the conduction current.

5. Fit a straight line to your data and determine its slope.

6. What should be the value of the slope of the fitted line? Why?

7. Compare the actual value of your fitted line to the expected value.

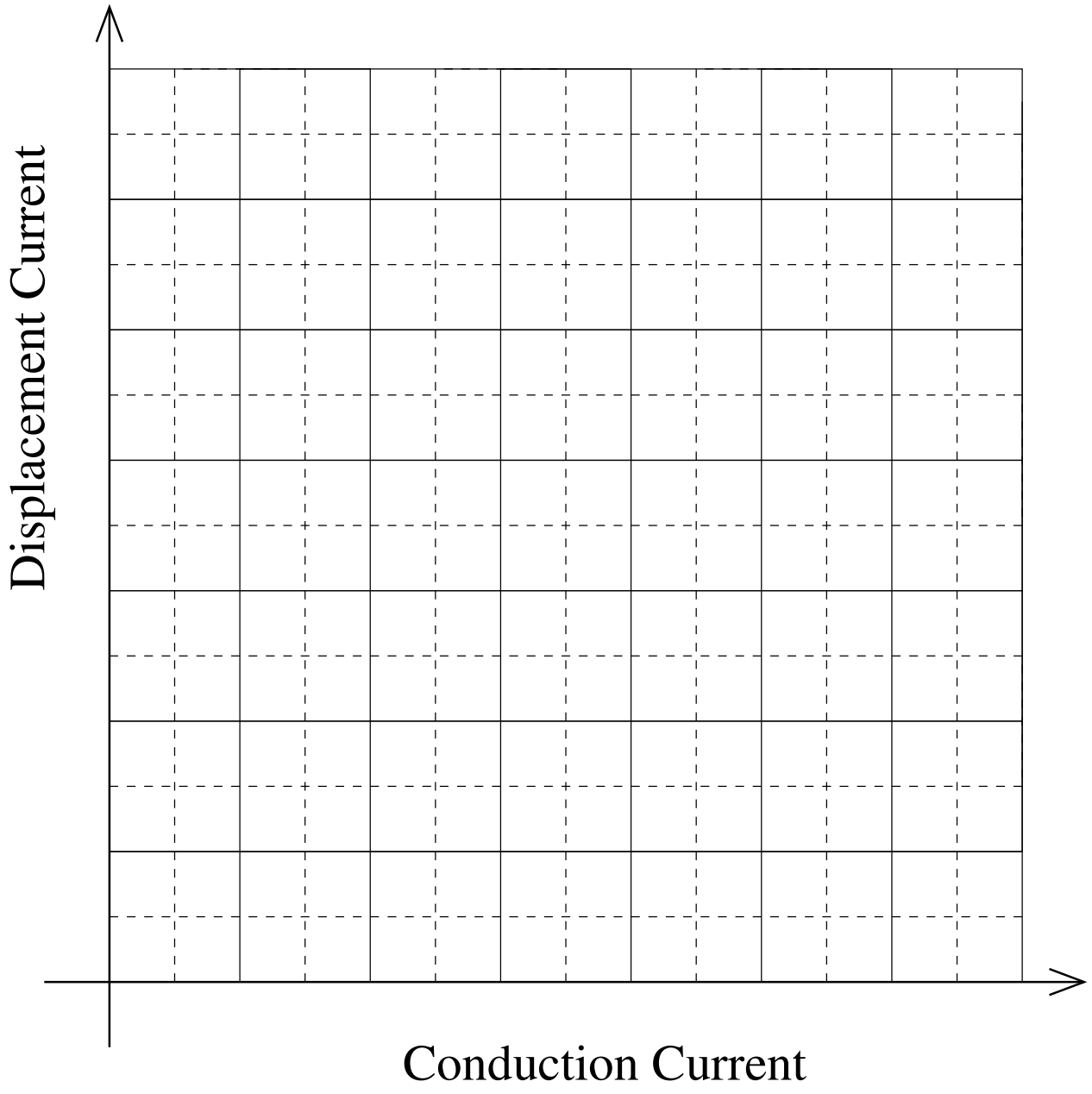

Figure 1: Displacement v.s. Conduction Current.